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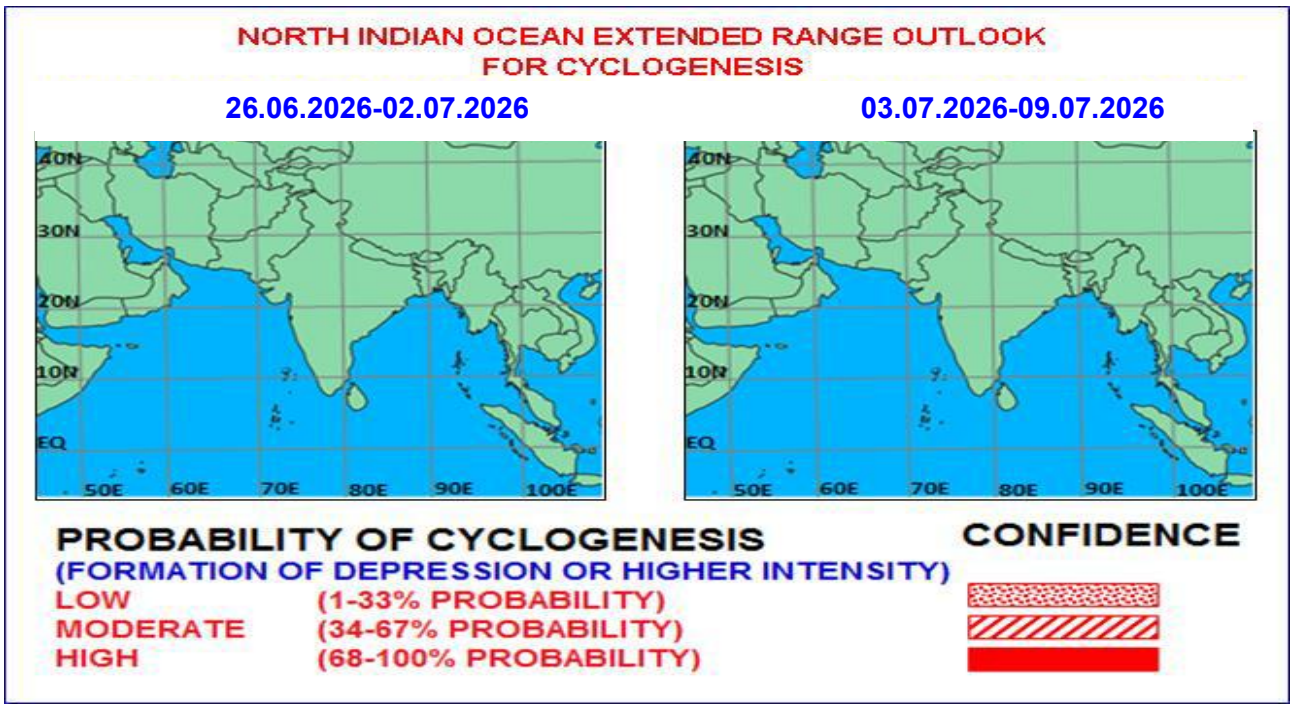


**Fig. 1: Graphical Cyclogenesis over the north Indian Ocean during the next two weeks**

## I. Environmental features and Equatorial waves:

The guidance from ECMM model indicates that MJO is currently in Phase 5 with an amplitude close to 1. It is likely to continue in the same phase with a gradually increasing trend in amplitude during the first half of week 1. It is then predicted to move across Phase 6 with amplitude remaining slightly more than 1 till middle of week 2. Thereafter, during the latter half of week 2, it is predicted to move across Phase 7 with gradually decreasing amplitude. Thus, MJO is likely to support the enhancement of convective activity over the North Bay of Bengal (BoB) during the first half of week 1.

### Equatorial Waves

The guidance from NCICS model indicates the prevalence of westerly wind anomaly (1–3 mps) over southwest BoB, along with Low-frequency background wave (LW) and easterly wind anomaly (3–5 mps) over north & adjoining areas of central BoB, indicates a favourable environment for the development of an upper air cyclonic circulation over north & adjoining central BoB. During the latter half of week 1, the model indicates westerly wind anomaly (1-3 mps) over north, central & adjoining southeast Arabian Sea (AS), Comorin & Gulf of Mannar region, along with an MJO wave approaching from the west and covering the entire south AS & southwest BoB. Over the BoB, the model shows strengthening of westerly wind anomaly (3-5 mps) over the south BoB along with prevalence of MJO over the southwest BoB, LW over south BoB, approaching Equatorial Rossby wave (ERW) from east over North Andaman Sea & adjoining Myanmar and easterly wind anomaly (1-3 mps) over Eastern parts of India during the same period. These features indicate a favourable environment for the enhancement of southwest monsoonal flow over BoB during the latter half of week 1. During week 2, the model is indicating almost similar features but enhanced features, indicating a favourable environment for the development of low pressure area/ depression over the north BoB.

## II. Model Guidance:

### (a) Guidance for Extended Range models:

During week 1, the 850 hPa mean wind field forecast of IMD Extended Range model (MME CFS-V2) indicates predominantly west-southwesterly winds covering south & adjoining central AS and over the BoB, predominantly westerly/ southwesterly winds are seen over most parts of BoB. During week 2, the model indicates the enhancement of south westerly winds up to central AS and over the BoB upto Head BoB. Development of the seasonal monsoon trough is also indicated from North Pakistan upto northwest BoB across the Indo-Gangetic plains.

The corresponding anomaly wind field indicates easterly/northeasterly wind anomaly over most parts of the north & central BoB. Similarly, over the AS northeasterly to northerly wind anomaly is seen over most parts of central & adjoining south AS. However, a cyclonic wind anomaly zone is seen over southeast AS. These features indicate a weaker cross-equatorial flow and hence monsoon circulation over both the basins during week 1. During week 2, there is a complete reversal of winds in the anomaly field. Southwesterly wind anomaly is seen extending upto central AS and over the BoB and westerly wind anomaly is seen upto central BoB. The model also indicates a cyclonic wind anomaly zone over the Head BoB during week 2. Thus, ERF model indicates enhancement of southwesterly monsoonal winds over BoB during week 2, with likely formation of an upper air cyclonic circulation/low pressure area over the Head BoB region.

The NCMRWF ERF model also indicates similar features as IMD ERF model, depicting the enhancement of southwest monsoonal wind flow over southeast AS and most parts of BoB during week 2. Anomalous cyclonic circulation is also indicated over westcentral BoB during week 1 and another over north BoB during the first half of week 2.

With respect to cyclogenesis, IMD MME-CFSV2 model indicates a zone with low (20-30%) probability of cyclogenesis along the west coast of India and another over westcentral BoB off Andhra Pradesh coast during week 1. During week 2, the model indicates a 20-30% probability of cyclogenesis over northwest BoB and over the Indo-Gangetic plains along the seasonal monsoon trough.

The ECMWF ensemble forecast indicates a low (20-30%) probability of cyclogenesis over the north BoB during all days from 1$^{st}$ to 7$^{th}$ July, with maximum probability of 30-40% on 6$^{th}$ July and over northeast AS during 6$^{th}$ and 7$^{th}$ July, 2026. The AIFS ENS model of ECMWF also reiterates similar features in its forecasts.

The sub-seasonal range forecast of ECMWF shows that there is a low probability of cyclogenesis over the north BoB (20-30%) and a very low probability over northeast AS during the week of 29$^{th}$ June to 6$^{th}$ July, 2026. However, the probability of cyclogenesis decreases over the region reaching 5-10% during the week from 5$^{th}$ July to 13$^{th}$ July, 2026.

Climatologically, there is around 10% probability of cyclogenesis over the North Indian Ocean region during the forecast period. Thus, the cyclogenesis probability from the ECMWF sub-seasonal system is greater than the climatological probability at the end of week 1 and at the beginning of week 2.

### (b) Guidance from Medium-Range NWP models:

Most of the deterministic models do not indicate any low pressure area/depression over the BoB and AS region during the next 7 days, i.e. week 1. However, several models (IMD GFS, NCEP GFS, NCMRWF-Mithuna and ECMWF) indicate likely formation of an upper air cyclonic circulation over northwest BoB off Odisha coast at the end of week 1 (around 2$^{nd}$ July) with the establishment of a seasonal trough with its eastern end along the northern plains near to its normal position. Under the influence of the upper-air cyclonic circulation, a low pressure area is likely to form over the north BoB at the beginning of the second week (around 4$^{th}$ July). Similar forecasts are also shown by both GEFS as well as Mithuna-ensemble

system. The NCEP GFS and ECMWF deterministic models also indicate that the low pressure area over north BoB is likely to become more marked while moving nearly west-northwestwards during next 2-3 days.

All AI models (Pangu Weather and GraphCast) based on the Mithuna model of NCMRWF also indicate the likely formation of a low pressure area over northeast BoB at the beginning of week 2 (around 3rd July). Leaving apart the FourCastNet model, the other two versions of the AI models show that the low pressure area is likely to become more marked by 4th July and intensify into a depression over northwest BoB around 5th July, 2026. The consensus in the forecasts of different NWP models shows that there is a likely formation of a low pressure area over north BoB, and further to become more marked over the same region. However, there is a large spread in the area of occurrence and degree of intensification in various models.

**III. Operational extended forecast for the next two weeks:**

Considering various large-scale environmental features, climatology and model guidance, it is inferred that there is no likelihood of cyclogenesis (formation of depression) during the entire forecast period. However, there is a likelihood of development of an upper-air cyclonic circulation over the northwest Bay of Bengal towards the end of week 1 and under its influence a low pressure area over the North Bay of Bengal in the beginning of week 2. Subsequently, the low pressure area is likely to move west-northwestwards and become more marked during week 2.

**IV. Verification of forecast issued during the previous two weeks:**

The extended range outlook issued on 11th June for week 2 (19.06.2026-25.06.2026) indicated no likelihood of cyclogenesis (formation of depression) during the entire forecast period. However, it indicated the likelihood of the development of an upper air cyclonic circulation / low pressure area over the North BoB towards the end of week 2.

The extended range outlook issued on 18th June for week 1 (19.06.2026-25.06.2026) indicated no likelihood of cyclogenesis (formation of depression) during the entire forecast period. However, it also indicated the development of an upper air cyclonic circulation over North and adjoining central BoB towards the end of week 1.

**Realised weather System:**

Actually, an upper air cyclonic circulation formed over southeast AS & adjoining Kerala coast on 18th June, 2026 and became less marked over the north Lakshadweep & neighborhood on 24th June, 2026. Another upper air cyclonic circulation formed over central parts of North & adjoining central BoB on 22nd June, 2026 and lay over the northeast & adjoining eastcentral BoB on 25th June 2026.

Thus, the formation of upper air cyclonic circulations over the north BoB was predicted well in two weeks advance and that over southeast AS was missed.

**Legends**: MJO: Madden Julian Oscillation, ERW: Equatorial Rossby Waves, KW: Kelvin Waves, NCICS: North Carolina Institute for Climate Studies (for Equatorial waves Forecast), IMD GFS: India Meteorological Department Global Forecast System, Mithuna: National Centre for Medium-Range Weather Forecasting Centre (NCMRWF) Unified Model, ECMWF: European Centre for Medium-Range Weather Forecasting, BOMM: Bureau of Meteorology, Australia, EC-AIFS: ECMWF Artificial Intelligence Forecasting System, ECMM: ECMWF-Ensemble System Bias Corrected, BFS: Bharat Forecast System, GPP: Genesis Potential Parameter, NCEP GFS/GEFS/CFS: National Centre for Environment Prediction GFS/GEFSv12/CFSV2, CPC: Climate Prediction Center (for MJO update), IMD-GEFS: GFS ensemble forecast system of IMD, NEPS: NCUM ensemble prediction system, CNCUM: Coupled NCUM, CPC: Climate Prediction Centre, NWS: National Weather Service, INCOIS: Indian National Centre for Ocean Information Services.

**Next update: 02.07.2026**